

SECTION VII.—WEATHER AND DATA FOR THE MONTH.

THE WEATHER OF THE MONTH.

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PRESSURE.

The distribution of the mean atmospheric pressure over the United States and Canada and the prevailing direction of the winds are graphically shown on Chart VII, while the average values for the month at the several stations, with the departures from the normal, are shown in Tables I and III.

For the month as a whole the mean barometric pressure was above the normal in Maine and over the Canadian Maritime Provinces, the northern half of the Plains States, and to the westward of the Rockies, except in portions of the far Southwest. For all other sections it was below the normal. The positive departures were generally small, the greatest values appearing in the extreme eastern Canadian Provinces, and the negative departures were likewise not large, the greatest appearing in the region of the Great Lakes.

The month opened with relatively high pressure in most sections east of the Mississippi River and in the far Northwest, while relatively low pressure obtained over the southeast portion of the Plains States. Elsewhere pressure was near the normal. During the next several days the pressure was generally low, except over the north Pacific coast, where it was above the normal. From the 5th to the 11th of the month several well-defined low areas moved slowly across the country, followed by a few days with moderately high pressure over most northern and central sections. This in turn was followed from the 14th to the 22d with pressure below the normal over most of the country. During the remainder of the month the pressure was above the normal during much of the time; at the close, however, relatively low pressure prevailed in the extreme eastern Canadian Provinces and over the far Northwest, while it was above the normal in the Lake region and northern portions of the Rocky Mountain and Plateau districts.

The distribution of the HIGHS and LOWS was generally favorable for westerly and northwesterly winds in the Missouri and upper Mississippi valleys and the southern portion of the New England States, while southerly winds were of greatest frequency from the Ohio Valley and Central Plains States southward. Elsewhere variable winds prevailed.

TEMPERATURE.

The temperature from the 1st to the 12th of the month was below the normal throughout most central, northern, and western portions of the country, including much of the great corn belt, and above the average in most southern districts. It was below freezing at times during this period in the northern Rocky Mountain and at elevated points in the southern Plateau districts; and frost occurred in New York, New England, and northern Minnesota.

From the 13th to the 20th the temperature averaged below the normal in practically all central and eastern sections and on the immediate Pacific coast, while it was above the normal in the Rocky Mountain and Plateau regions and the eastern portions of the Pacific Coast States. During this period both maximum and minimum tem-

peratures were higher than previously recorded during the present season in the Rocky Mountain and Plains regions, but at the same time freezing weather occurred at high elevations in Arizona, and frost was reported from Idaho and eastern Oregon. For the remainder of the month the temperature was below the normal in nearly all central, northern and western States, while it was somewhat above the average in most of the Gulf States. Maximum temperatures above 100° were recorded during this period in western Texas, southern New Mexico, and Arizona, but in most of the Rocky Mountain and Plateau regions they did not reach as high points as earlier in the month. Minimum temperatures at or below freezing occurred in northern Nevada and portions of the northern Rocky Mountain States, and frosts were general in the mountain districts.

For the month as a whole the temperature was above the normal in the southern half of South Carolina and the greater part of Georgia, the western Gulf States, the southern portions of the Rocky Mountain and Plateau regions, and in northwestern Oregon and southwestern Washington. Elsewhere it was below the normal.

PRECIPITATION.

During the first decade of the month there was but little rain west of the Rocky Mountains, but to the eastward precipitation was quite general in most sections, except in the west Gulf region, where practically no rain fell. Heavy falls occurred in northern Oklahoma and central Arkansas, and thence northeastward to the Lake region.

Much unsettled and stormy weather prevailed during the greater part of the second decade, but while showers were widespread, the precipitation was irregularly distributed. Heavy falls occurred in some southeastern States, where rainfall for some time past had been light, and they were also heavy in Oklahoma, Kansas, Nebraska, northern Texas, and locally in many of the more eastern States. Some rain fell on the north Pacific coast and it was heavy in parts of Idaho, but none was recorded in the southern portions of the Rocky Mountain, Plateau, and Pacific Coast States.

The rainfall during the remainder of the month was largely in the form of local showers and thunderstorms. The heaviest fall was in extreme southeastern Louisiana, although large amounts were recorded in central Oklahoma and locally in lower Michigan, northern Indiana, and other eastern sections. No rain fell in most of southern Texas, and nearly all of the central and southern Rocky Mountain and Pacific States were likewise rainless during this period.

For the month as a whole the rainfall was heavy in eastern and southern Kansas, central Oklahoma, southeastern Louisiana, and the central portions of Pennsylvania, Maryland, and Virginia, which was also the case over small areas in Michigan, on the South Carolina coast, and in the western portion of the Florida Peninsula. It was moderate to heavy in many sections from the Mississippi Valley eastward and also along the northern border westward to Montana. Elsewhere it was generally light, and in the far Southwest, including Arizona and Nevada, the southern portions of California and Utah, southwestern Colorado, the western half of New Mexico, and the extreme western portion of Texas little or no rain fell.

GENERAL REMARKS.

For the month as a whole the weather was generally cold and unfavorable for cultivated crops in most northern and central districts, although in many sections pastures, meadows, and winter grains made good progress. The corn crop was quite backward in much of the principal corn belt, but it made satisfactory progress in the more southern sections. The weather was generally favorable for winter wheat, and spring wheat, although somewhat retarded by cold weather during the early part of the month, later made generally satisfactory progress.

During the early part of the month the weather was favorable for the growth of cotton, but later there was a considerable period during which growth was retarded in the northern part of the belt by the unseasonably cool weather, while frequent rains prevented cultivation in many sections. However, during the latter part of the month the higher temperatures were favorable and good progress resulted. Truck crops were backward in many sections, but in the greater part of the country, as the month advanced, these crops made more satisfactory progress. The weather was generally favorable for meadows and pastures, except over the central and southern portion of the Rocky Mountain and Plateau regions where they suffered somewhat from lack of rain. Most fruits progressed favorably in development during the month.

SEVERE LOCAL STORMS.

The following notes of severe storms have been extracted from reports from officials of the Weather Bureau:

Arkansas.—A number of separate tornadoes all moving toward the northeast, visited the central and northern portions of Arkansas during the afternoon of June 5 and early morning of June 6, 1916. Press reports indicate that 83 persons were killed or died from the effects of the storms, and that property losses estimated at \$247,000 occurred.

Iowa.—The rain and electrical storm which occurred on the night of June 1, 1916, was one of the most destructive of record in northeastern Iowa. Sixteen persons were killed when a train ran into a washout, and the monetary losses totalled at least \$500,000.

Kansas.—During June, 1916, severe hailstorms occurred in some of the finest wheat growing countries in the western half of the State and along the Oklahoma line in the eastern part, causing more than a million dollars damage to growing crops. The worst of these storms devastated a strip about 4 miles wide, from Otis, near the east line of Rush County, to Pawnee Rock in the southwest corner of Barton County, a distance of 20 miles. This strip embraces some of the best wheat sections in Barton County and the storm literally mowed the crop down. Leaves were stripped from trees and in some places even the bark was torn off. It was stated on good authority that after the storm it was a common sight to see piles of hailstones from a foot to a foot and a half deep where they had drifted, giving the country an appearance of a drifted mid-winter snow. The damage from this one storm was estimated at between a quarter and a half million dollars.

Kentucky.—Severe local storms on the night of June 5-6, 1916, caused much damage in a number of localities. In Graves County about 500 buildings were blown down and several persons injured. In Scott County several thousand acres of land planted to corn and tobacco were seriously damaged. In Anderson County a severe storm destroyed several barns.

Minnesota.—Severe storms of wind, lightning, and rain, occurred on June 22, 27, 28, and 29, 1916, doing much damage to buildings, crops, and trees, and flooding lowlands. At Beardsley the storm of the 28th was in the form of a tornado, destroying barns, wind mills, and other property. A similar storm was reported at Crookston on the 22d.

Mississippi.—On June 5 and 6 thunderstorms were reported quite generally, accompanied by high winds, and in a few instances the storms developed into destructive tornadoes, the severest of which were confined mainly to Hinds, Smith, and Warren Counties near the south-central part of the State. The most destructive of these storms passed over portions of the city of Jackson, in Hinds County, where about 13 lives were lost, more than 50 persons were injured, and the property loss amounted to about \$275,000. The greater part of the loss occurred among the less substantial buildings, mostly cabins, located along the path of the storm, which were completely destroyed. The more substantial buildings generally escaped with the loss of roof or chimneys.

In Warren County a well-defined tornado occurred in which five persons were killed and about 25 injured, with property loss estimated at about \$20,000. In Smith County a third tornado was observed in which three persons were injured and property loss estimated at \$3,000 resulted. Considerable property losses occurred in other parts of the State from winds attending the storms, but they were not of tornadic character.

Ohio.—Quite a number of storms of marked severity, possibly tornadic in character, occurred in this State during the month. Many reports mentioned the large quantity of hail and the large-sized hailstones. Two of the more severe of these storms occurred on June 2; one in Clermont and Brown Counties, causing the death of 2 people, the destruction of 5 houses, 17 barns, numerous outbuildings, and orchards, with an estimated loss of \$15,000 to \$25,000. The other occurred in Green County, with 1 person killed and estimated property loss of \$100,000.

Average accumulated departures for June, 1916.

Districts.	Temperature.			Precipitation.			Cloudiness.		Relative humidity.	
	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure from the normal.	General mean for the current month.	Departure from the normal.
	° F.	° F.	° F.	Inch.	Inch.	Inch.	0-10		P. ct.	
New England.....	60.1	-3.5	-7.9	4.67	+1.70	-0.50	6.4	+1.2	83	+3
Middle Atlantic.....	66.3	-3.5	+4.4	4.37	+0.69	-0.90	5.8	+0.9	74	+1
South Atlantic.....	75.7	-0.9	+9.2	5.69	+0.10	-8.50	5.3	+0.7	76	-2
Florida Peninsula.....	80.2	-0.9	+1.5	1.62	-1.90	-7.30	5.2	0.0	75	-5
East Gulf.....	78.0	-0.1	+6.6	4.03	-0.50	-7.50	5.2	+0.5	74	-1
West Gulf.....	79.4	-0.4	+8.3	2.48	-1.40	-3.20	4.7	+0.4	73	-3
Ohio Valley and Tennessee.....	69.3	-3.8	-2.0	6.64	+0.40	-0.50	5.8	+0.8	71	+1
Lower Lakes.....	62.0	-4.4	-7.3	4.07	+0.50	+2.10	5.9	+1.0	75	+1
Upper Lakes.....	58.2	-4.3	-7.0	5.45	+2.10	+3.30	6.2	+1.1	77	+1
North Dakota.....	58.9	-4.8	-18.3	3.96	0.00	+0.20	5.8	+0.4	71	+3
Upper Mississippi Valley.....	66.2	-4.7	-4.3	4.20	-0.20	+0.70	5.8	+0.8	72	+2
Missouri Valley.....	67.1	-3.9	-3.7	4.20	-0.20	-3.00	4.7	-0.2	70	+3
Northern slope.....	58.8	-3.3	-10.8	2.64	+0.40	-0.40	4.8	0.0	61	+4
Middle slope.....	70.4	-1.4	+0.2	2.27	+1.10	-0.30	4.3	+0.3	62	+2
Southern slope.....	80.0	+2.9	+16.2	1.19	-1.50	-3.50	3.8	0.0	49	-2
Southern Plateau.....	74.6	0.0	+2.4	0.08	-0.30	+1.30	1.0	-1.0	25	-5
Middle Plateau.....	64.1	-1.0	+0.9	0.11	-0.40	-0.40	2.0	-1.3	30	-8
Northern Plateau.....	61.2	-2.8	+11.5	1.63	-0.50	+1.40	4.7	-0.1	51	0
North Pacific.....	57.3	-0.4	+6.6	1.56	+0.50	-5.60	5.6	+1.0	74	-2
Middle Pacific.....	60.7	-1.9	+1.4	0.54	0.00	+0.10	3.1	-0.4	61	-1
South Pacific.....	64.4	-1.7	+2.2	0.00	-0.10	+4.50	2.8	0.0	68	+2